

October 6, 2014

Ms. Adonica Renee Pickett  
Office of Energy Policy & Systems Analysis (EPSAC60)  
QER Meeting Comments  
U.S Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-0121  
(Submitted via email to qercomments@hq.doe.gov)

RE: Comments of America's Natural Gas Alliance on Quadrennial Energy Review, "Natural Gas: Transmission, Storage and Distribution" Public Meeting

Dear Ms. Pickett:

America's Natural Gas Alliance (ANGA) appreciates the opportunity to provide comments on the Quadrennial Energy Review (QER) public meeting held on July 21, 2014 in Pittsburgh, PA. ANGA submits the following comments to underscore the ability of natural gas to continue to serve as a reliable and affordable resource for meeting our nation's growing energy needs.

Representing North America's leading independent natural gas exploration and production companies, America's Natural Gas Alliance (ANGA) works with industry, government and customer stakeholders to promote increased demand for and availability of our nation's abundant natural gas resource for a cleaner and more secure energy future. The collective natural gas production of the ANGA member companies is approximately eight trillion cubic feet per year, which represents one third of the total annual United States natural gas supply.

The safe and environmentally responsible development of domestic natural gas has been, and increasingly will be, an important component of America's energy supply and economic strength. Natural gas is a clean-burning, efficient, abundant, and cost-effective fuel that offers the potential to significantly decrease air pollution emissions and promote America's energy security. In previous comments to the Department of Energy (DOE) regarding the QER Public Meeting, "Enhancing Energy Infrastructure Resilience and Addressing Vulnerabilities", ANGA addressed the expansion of U.S. pipeline systems and their critical nature to ensuring ample access of our abundant natural gas at stable prices throughout the country.

In these comments, we expand on this theme, by emphasizing the continued importance of pipeline infrastructure across the nation and the critical role it plays in price stability. We also highlight the ways that infrastructure expansions can enhance more efficient, clean burning natural gas-fired power generation. Finally, we address the benefits these expansions will have on our workforce, as the greater use of natural gas will continue to further strengthen America's industrial sector.

### **Infrastructure**

The natural gas industry is working vigorously to complete infrastructure projects that are designed to meet growing demand. Specifically, increasing pipeline infrastructure into the Northeast is of high priority, because moving abundant supplies from the neighbouring Marcellus Shale basin into

that region will allow existing natural gas-fired generating fleets regional supply security and economic competitiveness. In fact, several pipeline additions in the New Jersey/New York City area that went into service in 2013<sup>1</sup> have already had positive impacts on the region:

- On October 31, 2013, for the first time in eight years, natural gas prices in Manhattan were nearly 40¢ cheaper than in Louisiana;
- New flows of gas from the Marcellus have effectively doubled the amount of natural gas available to Manhattan and have steadily reduced the island's delivery price;
- Lower natural gas prices are expected to reduce energy costs by \$350 million per year in New York and New Jersey.<sup>2</sup>

Local metropolitan consumers are experiencing lower energy costs on a consistent basis. Further, there are new projects underway that hold the same promise of these positive outcomes for the New England market, namely the Algonquin Incremental Market (AIM) expansion, the Northeast Energy Direct (NED) expansion, and the Tennessee Gas Northeast expansion. Assuming these projects are able to move forward, we expect to see prices to stabilize during the winter period. However, a recent study by Holland and Hart LLP for the INGAA Foundation<sup>3</sup> shows that delays are common in the permitting process for interstate pipeline projects. The effects of these delays range from increased project costs, missed in-service dates, prolonged price differentials for consumers, loss of economic benefits for communities, safety concerns, environmental disturbances and restoration challenges, and loss of state and local tax revenues.<sup>4</sup>

The regulation of pipeline expansions and new construction, is thorough, highly developed, and extensive at the local, state, and federal levels. The Federal Energy Regulatory Commission (FERC) regulates interstate transmission pipeline operations, including approvals, permitting, siting for new pipeline facilities, and transmission rates. FERC's assessments take into account the public need, landowner disturbance issues, and environmental impacts.<sup>5</sup> Beyond FERC's jurisdiction there are several other federal laws and regulations that impact the construction and operation of these pipelines:

- National Environmental Policy Act of 1969;
- Federal Water Pollution Control Act ("Clean Water Act");
- Coastal Zone Management Act;
- Endangered Species Act;
- Clean Air Act;
- National Historic Preservation Act;
- The Pipeline Safety Improvement Act of 2002;
- The Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006.

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<sup>1</sup>"Spectra Energy Places New Jersey-New York Natural Gas Pipeline into Service," Spectra Energy, accessed October 1, 2014, <http://www.spectraenergy.com/Newsroom/News-Archive/Spectra-Energy-Places-New-Jersey-New-York-Natural-Gas-Pipeline-into-Service/>

<sup>2</sup> Matthew Philips, "Cheap Natural Gas Hits New York City," *BusinessWeek: Global\_economics*, November 5, 2013, <http://www.businessweek.com/articles/2013-11-05/a-natural-gas-line-reaches-new-york-city>.

<sup>3</sup>*Expedited Federal Authorization of Interstate Natural Gas Pipelines: Are Agencies Complying with EPCA 2005?* (INGAA Foundation, December 21, 2012), accessed October 1, 2014, <http://www.ingaa.org/Foundation/Foundation-Reports/EPCA2005.aspx>.

<sup>4</sup> Ibid., 29.

<sup>5</sup>For a comprehensive list of major rules, orders and policy statements made by the FERC see: [http://www.eia.gov/oil\\_gas/natural\\_gas/analysis\\_publications/ngmajorleg/keyferc.html](http://www.eia.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/keyferc.html).

Pipeline expansions and new projects must also comply with state and local regulations.

Delays in these expansion projects will delay benefits to New England consumers. We encourage the DOE, through the QER process, to focus on streamlining the permitting process so that such needed projects are able to move forward as expeditiously as possible.

## Workforce Development

In addition to the opportunities for energy costs savings, increased pipeline capacity and expansions will also provide a significant opportunity for increased employment growth and economic stimulus. The natural gas industry has continuously shown a commitment to long-term training, resulting in the creation of a highly skilled workforce. The abundance of our natural gas resources along with our ability to harness this resource and expand its use only further reaffirms this commitment to a skilled workforce:

- Cabot Oil & Gas supports Lackawanna College's School of Petroleum & Natural Gas by providing funds that allow the school to offer a “world-class education designed to prepare a ready workforce that fits the needs of multiple companies across the industry”.<sup>6</sup> The funds also support student scholarships, state-of-the art equipment, training, and facility development;<sup>7</sup>
- Anadarko, Chesapeake Energy, XTO Energy, among others, support ShaleNet—a Community Based Job Training Grant. ShaleNet works to connect individuals looking for opportunities in the oil and gas sector with training programs and employers. The goal is to help these individuals shape lasting careers as pipeline, production and petroleum technicians connecting students with employers for job opportunities;<sup>8</sup>
- XTO Energy helped to establish the Petroleum Technology Training Center at Butler County Community College (BC3), in Butler, PA expanding BC3's program to train workers in the oil and gas industry;<sup>9</sup>
- Noble Energy has been involved with programs at both Pierpont Community College and Northern WV Community College, where they provide funding, serve on the advisory committee, and help develop curriculum;<sup>10</sup>
- Apache joined other contributors in helping fund bonuses for 325 new teachers and 1,200 existing ones in Midland, TX in an effort to attract and retain quality instructors in the Midland School District;<sup>11</sup>

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<sup>6</sup>“Lackawanna College Announces \$2.5 Million Gift from Cabot Oil & Gas Corporation Gift to Fund the School of Petroleum & Natural Gas,” Lackawanna College, accessed October 1, 2014, <http://www.lackawanna.edu/falcon-headline/lackawanna-college-2-million-gift-cabot-oil-and-gas/>.

<sup>7</sup>Ibid.

<sup>8</sup>ShaleNET, accessed October 1, 2014, <http://www.shalenet.org/>.

<sup>9</sup>Ed Biller, “XTO Contributes to Training Center,” *Butler Eagle*, April 19, 2013, accessed October 1, 2014, [http://www.bc3.edu/2013-presidents-timeline/pdf/XTO\\_contributes\\_to\\_training\\_center.pdf](http://www.bc3.edu/2013-presidents-timeline/pdf/XTO_contributes_to_training_center.pdf).

<sup>10</sup>“Noble Energy to Invest \$250,000 in College Program - Business, Government Legal News from throughout WV,” *The State Journal*, March 26, 2014, accessed October 1, 2014, <http://www.statejournal.com/story/25079698/noble-energy-to-invest-250000-in-college-program>.

<sup>11</sup>*Steadfast in Our Dedication to the Environment 2014 Summary Sustainability Report* (Apache, Summer 2014), accessed on October 1, 2014, [http://www.apachecorp.com/Resources/Upload/file/sustainability/APACHE-Sustainability\\_Report\\_2014.pdf](http://www.apachecorp.com/Resources/Upload/file/sustainability/APACHE-Sustainability_Report_2014.pdf).

- The Devon Science Giants Award annually recognizes schools that demonstrate innovative approaches to science education. Since 2007, Devon has awarded nearly \$300,000 in grants to schools across North America to further enhance their science initiatives. The funds have helped schools build outdoor classrooms, replace out-dated science lab equipment and develop educational farmers' markets.<sup>12</sup>

As the natural gas industry continues to grow, job training and development becomes an even greater priority. Through partnering with educational institutions, foundations, and government organizations the natural gas industry is strengthening its relationships within the communities in which it operates. And, through educational scholarships, and workforce development programs, the industry is helping to create employment opportunities that benefit individuals, families and communities around the country.

### Natural Gas and Manufacturing

Increased development and use of natural gas is enabling the recovery of the industrial sector in the United States. The affordable price of natural gas coupled with abundant domestic supplies has spurred the beginning of an American manufacturing renaissance. The industrial sector uses natural gas to heat and power buildings, machinery and equipment. In addition, natural gas liquids (NGLs), the co-products of natural gas production, are feedstock into chemical manufacturing processes, particularly for plastics and the petrochemical industries. The affordable price of natural gas allows these industries to increase production margins and grow their businesses. Over \$110 billion in capital for manufacturing capacity growth has been announced through 2018 in the U.S. chemical sector.<sup>13</sup> The below projects highlight this trend throughout the manufacturing industry:

- Odebrecht Group, a private engineering, construction and petrochemical company is planning to build a natural gas refining complex in West Virginia;<sup>14</sup>
- Timken Company, is investing \$225 million to improve its productivity and product offerings at a steel plant in Faircrest, Ohio;<sup>15</sup>
- Formosa Plastics plans to spend \$1.7 billion on an ethylene plant in Point Comfort, Texas;<sup>16</sup>
- Chevron Phillips Chemical Company is investing in a \$6 billion expansion of its Cedar Bayou Chemical Complex in Baytown, Texas.<sup>17</sup>

Further, liquid natural gas (LNG) exports can help encourage a continued robust supply of NGLs by creating a demand outlet for dry gas. LNG exports will boost dry gas production, which will result

<sup>12</sup>Devon Energy 2011/2012 Corporate Social Responsibility Report (Devon Energy, n.d.), accessed October 1, 2014, [http://www.devonenergy.com/documents/DVN-2012CSR-5-29\\_2014.pdf](http://www.devonenergy.com/documents/DVN-2012CSR-5-29_2014.pdf).

<sup>13</sup>Dooley, Cal, "Prepared Remarks for Cal Dooley," March 5, 2014 <http://www.americanchemistry.com/Policy/Chemical-Safety/TSCA/Cal-Dooley-Remarks-at-GlobalChem-2014.pdf>

<sup>14</sup>David Peebles, "Downstream Cluster Development" (presented at the QER Public Meeting in Pittsburgh, PA: Natural Gas: Transmission, Storage and Distribution, Carnegie Mellon University, July 21, 2014), [http://energy.gov/sites/prod/files/2014/07/f17/qermeeting\\_pittsburgh\\_peebles\\_presentation.pdf](http://energy.gov/sites/prod/files/2014/07/f17/qermeeting_pittsburgh_peebles_presentation.pdf).

<sup>15</sup>"Timken To Invest \$225 Million at Its Faircrest Steel Plant in Ohio to Support Growing Demand," Timken, (February 21, 2012), accessed, October 1, 2014, <http://news.timken.com/index.php?s=12504&item=122267>.

<sup>16</sup>"Formosa Investing \$1.7 Billion to Expand Point Comfort Plant," *Plastics News*, accessed October 1, 2014, <http://www.plasticsnews.com/article/20120227/NEWS/302279949/formosa-investing-1-7-billion-to-expand-point-comfort-plant>.

<sup>17</sup>Laura Goldberg, "Chevron Phillips Chemical Launches \$6 Billion in Gulf Coast Projects," Fuel Fix, accessed October 1, 2014, <http://fuelfix.com/blog/2013/10/03/chevron-phillips-chemical-launches-6-billion-in-gulf-coast-projects/>.

in an increase in NGL production further utilizing our robust supplies. ICF International examined the impacts of LNG exports and found that natural gas liquid volumes would increase between 138,000 and 555,000 barrels per day by 2035 due to LNG exports.<sup>18</sup> An increase in NGL supply helps to preserve low NGL prices, which, in turn, benefits domestic manufacturing allowing for greater job creation.

### **Clustering and Regional Industry**

Advanced manufacturing and other industrial processes brought on by the affordable and abundant supply of natural gas are well suited to take advantage of the development of natural gas infrastructure and form manufacturing clusters. Clustering is a strategy for integrating distinct businesses that work in parallel to each other. Business clusters are often geographic in nature and include companies that are directly related by resources. Recently, the Appalachian Shale Cracker Enterprise (ASCENT) discussed the clustering developments that are already taking place in West Virginia, Ohio, and Pennsylvania as related to plastics manufacturing.<sup>19</sup>

ANGA is encouraged by these initiatives and supports similar state level efforts to utilize clustering across the country. Texas and the Southeast are already experiencing the benefits of existing clusters, including attracting additional manufacturing projects. Other production regions, such as the Marcellus/Utica shale region, are prime targets for coupling success in natural gas production with industrial and petrochemical growth. Research over the last 20 years has shown that strong clustering of state-level governments, research, and industry is a proven formula for growth and positive long-term success for regions across the United States..<sup>20</sup>

### **Environment**

Natural gas producers are not only contributing to job creation and economic growth, they are also committed to producing energy in a manner that protects the environment and public health. One of the ways producers do this is by minimizing the surface impacts of the production process and maximizing surface reclamation:

"We devote substantial time and resources to minimizing the impact of our operations on the land and communities where we operate. By using cutting-edge technology, such as three-dimensional seismic mapping and horizontal drilling, we are able to drill for natural gas with an accurate depiction of the targeted geological formations below. This allows exploration teams to identify natural gas prospects and space wells more efficiently and effectively. In addition to the strategic use of seismic data, geographical and topographical aspects of each site are carefully evaluated to determine the best place to locate a well. To further minimize surface impairment, many pads are designed for multiple wells to reduce the number of pads

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<sup>18</sup>ICF International, "U.S. LNG Exports: Impacts on Energy Markets and the Economy." May, 2013, 7.

<sup>19</sup>David Peebles, "Downstream Cluster Development" (presented at the QER Public Meeting in Pittsburgh, PA: Natural Gas: Transmission, Storage and Distribution, Carnegie Mellon University, July 21, 2014), [http://energy.gov/sites/prod/files/2014/07/f17/qermeeting\\_pittsburgh\\_peebles\\_presentation.pdf](http://energy.gov/sites/prod/files/2014/07/f17/qermeeting_pittsburgh_peebles_presentation.pdf).

<sup>20</sup>Cliff Waldman, Matthew N. Murray, and Howard H. Baker Jr., *Advanced Manufacturing in the American South: An Economic Analysis Supporting Regional Development* (Manufacturers Alliance for Productivity and Innovation, 2013).



required for optimal land use. Another benefit to multiple well pad sites is the reduction in road traffic due to less frequent drilling rig mobilizations."<sup>21</sup>

In addition to the steps taken to minimize surface footprints, producers also take steps to minimize surface impact and prevent erosion and sediment issues. Measures used in many operating areas include erosion controls to prevent storm water pollution and sediment controls to prevent soil runoff as well as seeding to aid in controlling erosion. Further, the proper design, alignment and construction of roads is essential to avoiding sensitive environmental areas and to reducing noise and traffic pollution.<sup>22</sup> Ecological impacts are also given great attention. Biodiversity plays an important role in proactive environmental stewardship. Producers incorporate measures into their development plans that help to conserve wildlife habitat.

Another important part of the natural gas industry's commitment to environmental stewardship focuses on a community's water needs and the ability to use water wisely. A typical deep shale gas well stimulation may require between 2 million and 4 million gallons of water. These numbers are significant, but they are smaller than the amount of water continually required to generate power from other energy sources.<sup>23</sup>

- Newfield Exploration Company uses multi-well drilling pads to reduce surface footprint. Depending on the optimum spacing between development wells, multi-well pads reduce land use by more than 50% when compared to traditional single-well pad designs. In the Greater Monument Butte Unit (GMBU) of Utah, they have minimized their surface impact by 80% since 2005. Fewer drilling pads reduce infrastructure demands like roads, production facilities and gathering systems. Further, Newfield's promotion of centralized processing facilities has also reduced traffic and dust by directing trucks to fewer locations that are near paved roads.<sup>24</sup>
- BHP Billiton has committed more than \$30 million to conservation efforts as of fiscal year 2014.<sup>25</sup>
- Chesapeake Energy Corporation recycled nearly 246 million gallons of produced water in 2013 - 10 million gallons more than in 2012. They were able to filter and reuse 137 million gallons of produced water associated with operations in the Marcellus, 53 million gallons in the Utica, and 39 million gallons in the Mississippi Lime.<sup>26</sup>
- Anadarko's water management and well completion strategies in the Marcellus Shale help to reduce truck traffic and associated emissions, while minimizing earth disturbances and conserving available water resources. Additionally, a piping system using two lines, one for

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<sup>21</sup> "Environment, Health & Safety," *Cabot Oil & Gas*, accessed October 1, 2014, <http://www.cabotog.com/social-responsibility/environment-safety/>.

<sup>22</sup> Ibid.

<sup>23</sup> Erik Mielke, Lauda Diaz Anadon, and Venkatesh Narayanamurti, *Water Consumption of Energy Resource Extraction, Processing and Conversion* (Belfer Center for Science and International Affairs Harvard Kennedy School, October 2010), <http://belfercenter.ksg.harvard.edu/files/ETIP-DP-2010-15-final-4.pdf>.

<sup>24</sup> Newfield, *2013 CORPORATE RESPONSIBILITY REPORT* (Newfield, 2013), 37, accessed October 1, 2014, <http://www.newfield.com/assets/pdf/CRReport.pdf>.

<sup>25</sup> BHP Billiton, *2014 Sustainability Report* (BHP Billiton), 29, accessed October 1, 2014, [http://www.bhpbilliton.com/home/society/reports/Documents/2014/BHPBillitonSustainabilityReport2014\\_interactive.pdf](http://www.bhpbilliton.com/home/society/reports/Documents/2014/BHPBillitonSustainabilityReport2014_interactive.pdf).

<sup>26</sup> *2013 CORPORATE RESPONSIBILITY REPORT* (Chesapeake Energy, 2013), 12, <http://www.chk.com/Media/Publications/Corporate-Responsibility-Report/Documents/pdf/2013CorporateResponsibilityReport.pdf>.

natural gas and one for fresh water (located in the same trench to reduce surface disturbance), provides water to well sites for the completion process.<sup>27</sup>

- Range Resources has been successfully recycling 100% of its flow-back water in their core operating area of southwestern Pennsylvania since 2009.<sup>28</sup>

The United States is experiencing significant environmental benefits from the increased use of natural gas. In the electric sector CO<sub>2</sub> emissions have declined by 16% since 2005 due to fuel switching to natural gas and renewable energy sources.<sup>29</sup> At similar electric generation levels, ANGA estimates 286 million fewer tons of CO<sub>2</sub> in 2013 compared to 2005 resulting from natural gas fuel switching. Natural gas power plants are highly efficient, emit no mercury air pollution, virtually no sulfur dioxide or particulate matter, and far lower nitrogen oxides and greenhouse gases when compared to other types of fossil fuel power plants. Increased use of natural gas in the electric sector will continue to reduce emissions and increase environmental gains.

## Conclusion

ANGA appreciates DOE's efforts in working to ensure an affordable, clean, and secure energy future. And, ANGA believes that natural gas is an essential part of that future. ANGA looks forward to continuing to work with the DOE and the administration as it addresses our nation's energy needs, including the expansion of our pipeline systems. ANGA seeks to encourage federal and state policies that increase and enhance the pipeline network in the United States in order to ensure that all regions have ample access to abundant natural gas supplies at stable prices. Further ANGA notes the environmental benefits and increased flexibility in power generation that natural gas use offers. Thank you again for the opportunity to participate in the Quadrennial Energy Review process. ANGA is available to address any questions or concerns that the Department may have.

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<sup>27</sup>"Safeguarding Water," Anadarko, accessed October 1, 2014, <http://www.anadarko.com/Operations/Pages/SafeguardingWater.aspx>.

<sup>28</sup>"Range Answers Questions on Hydraulic Fracturing Process," Range Resources, accessed October 1, 2014, <http://www.rangeresources.com/Media-Center/Featured-Stories/Range-Answers-Questions-on-Hydraulic-Fracturing-Pr.aspx>.

<sup>29</sup>Richard Newell, "Implications of Shale Gas Development for Climate Change" (Board on Environmental Change and Society, May 30, 2013), [http://sites.nationalacademies.org/DBASSE/BECS/DBASSE\\_083187](http://sites.nationalacademies.org/DBASSE/BECS/DBASSE_083187).